

REMARKS

Claims 1-11, and 14-16 are pending in the present application with claims. Claims 1, 5, and 6 amended, and claims 12 and 13 cancelled herein.

In the office action, claims 1-9 and 11-15 are rejected under 35 U.S.C. § 103(a) as anticipated by U.S. Published Patent Application No. 2004/0181603 to Rajahalme in view of U.S. Published Patent Application No. 2003/0083209 to Sain-Hilaire. Claims 10 and 16 are rejected under 35 U.S.C. § 103(a) as unpatentable over Rajahalme in view Sain-Hilaire and in further view of U.S. Published Patent Application No. 2004/0133634 to Luke.

The load balancer according to the present invention is connected between a mobile IP terminal and a plurality of servers (S1, S2, ...) as communicating destinations, and rewrites the destination stored in the header of an arriving packet from a representative address (D0) of the servers to the address of a server as a communicating destination based on identifying information specific to the mobile IP terminal stored in the header.

This feature is recited in the claims, as now amended, and is further clarified in claim 2 which states the identifying information comprises a home address or a care-of address as claimed in claims 5 and 6. Support for these features, which have been added to the claims can be found in the specification relating to the distribution processor 4 (Fig.2) as well as Figs.11-12, the specification [0046] (3) on page 14, and the like.

The load balancer of this invention is constructed on the premise of “route optimization” where a moving state of an IP terminal is tracked on end-end basis for enabling a packet transfer route to be optimized. This does not require a so-called “reverse tunneling” where an IP terminal behaves as if it communicates from a home network as viewed from a communication destination by encapsulating or decapsulating a packet through a home agent. The load balancer

of this invention does not use “reverse tunneling”, thus the packet transfer route thereof is not required to pass through a home agent corresponding to the mobile IP terminal. This means that, the load balancer, as recited in the present invention does not restrict the packet transfer route between a mobile IP terminal and the load balancer, so that it can be flexibly applied to even a case where the packet transfer route is modified or optimized for some reason. Accordingly, one advantage of the claimed invention is that the load balancer enables compatibility along a mobile IP communication service of an end-end type which can optimize the relaying route with load-balancing the communication service. It is also advantageous that a partial header processing that is rewriting the destination of an arrival packet enables a necessary processing to be done with a lower load at a single site.

To clarify the distinguishing features of the present invention as recited in independent claims 1, 5 and 6, the following arguments will refer to Figs. A-C in Appendix 1, attached hereto. Though these figures do not form part of the specification, they are presented here to assist in clarifying the language of the claims and the distinguishing features of the claims as compared to the cited prior art references.

As best understood, the relied upon portions of Rajahalme, as schematically shown in Fig.A, merely discloses a router terminating a packet transmitted from mobile IP terminal having a predetermined destination address S1, a care-of address CoA, and a home address HoA in the header by eliminating CoA and making HoA in the extension header a source address.

In contrast, the load balancer (router) according to the invention as claimed in independent claim 1 and schematically shown in Fig.B, first determines a single destination server S1 according to a load balancing algorithm from among a plurality of servers S1...Sn represented by a representative address D0 stored in an arrival packet from a mobile IP terminal,

and then rewrites the packet from the address D0 to the address of the destination server S1 as determined above where the load balancer does not terminate CoA and HoA in the extension header but only refers to CoA and HoA for a transparent transfer as shown. When the load balancer receives a packet with the same identifying information (CoA and/or HoA), repeatedly it determines the same destination server S1 and rewrites the representative address D0 to the address of the destination server S1 determined, resulting in providing a consistency maintenance function ([0005]).

Thus, it is respectfully submitted that the relied upon portions of Rajalme fails to teach extracting identifying information specific to a mobile IP terminal from an arrival packet having a destination designated to a plurality of servers with a representative address; and determining a single destination server, from among the plurality of servers corresponding to the destination of the packet, to be connected based on the identifying information, and rewriting the destination of the packet to be changed into the destination server from the plurality of servers, and to be transmitted to the destination server, as claimed in claim 1, and similarly recited in claims 5 and 6.

Further, it is submitted that the relied upon portions of , Sain-Hilaire, as schematically shown in Fig.C, employs a home agent HAA in which a packet transmitted from a mobile IP terminal is sent to the home agent HAA to terminate the mobile IP function.

However, the load balancer according to the claimed invention utilizes route optimization enabling a packet to be directly reached from the mobile IP terminal to the load balancer (router) not via a home agent HAA.

Thus, it is respectfully submitted that the load balancer as claimed in independent claims 1, 5 and 6 is not taught by Rajahalme or Sain-Hilaire, whether used alone or in combination.

Claims 2-4, 7-11, and 14-16 depend from one of these allowable base claims and are allowable therewith.

IN CONCLUSION

In view of at least the remarks set forth above, this application is in condition for allowance which action is respectfully requested. However, if for any reason the Examiner should consider this application not to be in condition for allowance, the Examiner is respectfully requested to telephone the undersigned attorney at the number listed below prior to issuing a further Action. Any fee due with this paper may be charged to Deposit Account No. 50-1290.

Respectfully submitted,

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